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☞See advertisement on last page.

Poetry.

THE BATTLE OF OUR LIFT

BY REV. E. C. JONES.

Up to the strife with care,
Be thine an oaken heart,
Life's daily contest nobly share,
Nor act a craven part;
Give murmurs to the coward throng,
Be thine the joyous notes of song.

If thrown upon the field,
Up to the task once more.
'Tis worse than infamy to yield,
'Tis childish to deplore:
Look stern misfortune in the eye,
And breast the billow manfully.

Close in with every foe,
As thickly on they come,
They can but lay the body low,
And send thy spirit home:—
Yet may'st thou stout it out and view
What giant energy can do.

Soon shall the combat cease,
The struggle fierce and long,
And thine be true, unbroken peace,
And thine the victor's song:—
Beyond the cloud will wait for thee,
The wreath of immortality

KITCHEN SONG.

Ho, ho, Hum! how I wish
That each kettle and dish
Could be cleansed by some Yankee machine;
It would save such a sight,
Of work, morn and night,
To have one that would scour wash and clean.

I should think that they might,
With their noddles so bright,
Add much to our comfort and ease,
And a dish-water make,
That would beat the horse-rake,
Or the things to make butter and cheese.

They've machines to cut glass,
And machines to cut grass,
And machines to fulfil all their wishes;
But they never once think,
While their own healths they drink,
Of poor women who have to wash dishes.

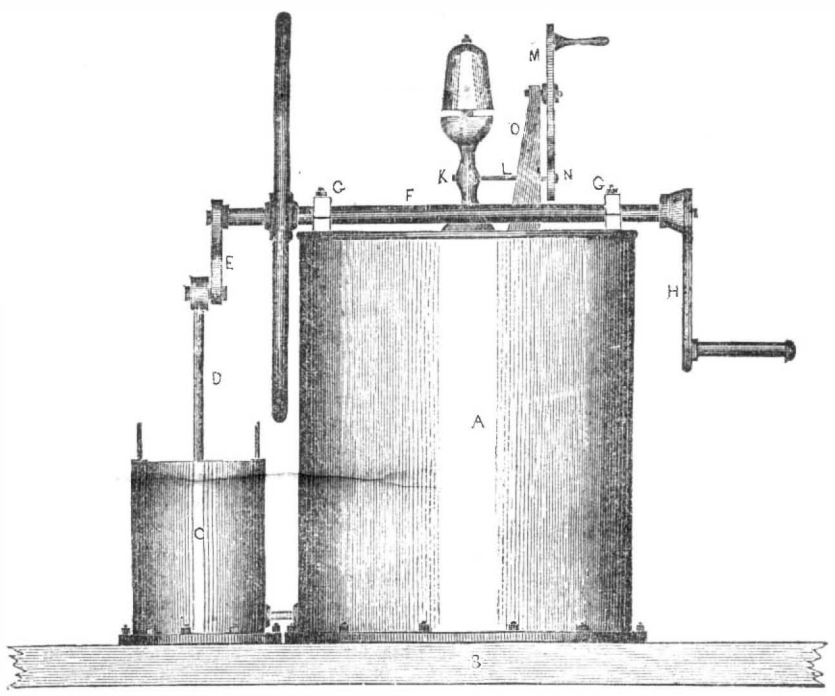
It must have a strong hand,
That will not show the brand
Of the stove door, or frying pan hot:
And never once flinch,
But with resolute clinch,
Lay right hold of each kettle and pot.

And when 'tis completed,
The inventor 'll be greeted
With praises from all that lack wealth—
And every good lass
Will fill up a glass
Of bright water to drink to his health.

A GEM.

The flower beheld the star above,
And longed to reach its airy love,
But longed in vain. A dew-drop fell,
Into the rich and fragrant bell;
And then the star was imaged there,
As though it dropped from upper air,
And glancing down from heaven had come
To seek on earth a kindred home.

RAILWAY AND STEAM BOAT WHISTLE.



This is the invention of an engineer, named Alexander Douil, of Euston Grove, Middlesex, England, and relates to the employment of a compressed atmospheric air apparatus, for producing audible railway, steamboat, and other signals, in a similar or somewhat similar manner to that in which sounds are ordinarily produced by the steam-whistle of locomotive engines; and also to a mode or modes of varying the sound, and producing several distinct sounds, by rapidly opening and shutting the communication between the reservoir containing the compressed atmospheric air and the whistle: and further to a mode or modes for combining two or more whistles which produce similar sounds, and by that means obtain an extended scale or gamut of distinct signals. The annexed cut represents an elevation of this apparatus which consists of a receiver A, placed on a pedestal or frame work B; the receiver has atmospheric air forced into it by an air pump C, and is maintained at a maximum pressure that will ensure the action of the whistle; the air-pump C, may be either single or double-acting, as may be found most suitable in practice; the piston of the pump is actuated by means of a connecting rod, D, and crank E, on a shaft F, fixed in bearings, G G, on the receiver; the shaft F, where the apparatus is applied to a railway train, may be driven from any moving part of the carriage to which it is affixed; and in the case of its application to steamboats, power may be communicated from the engine, but in all cases it should be so attached that it may be readily disconnected in the event of the moving power stopping, so as to admit of its being actuated by the handle H, air having been forced into the receiver A, until a pressure is thus attained therein that will ensure the action of the whistle I, which is of the kind ordinarily used as a steam whistle, the shape of which may be varied for the purpose hereafter explained. In order to prevent the bursting of the receiver A it should be furnished with a safety-valve, loaded to the extent of pressure necessary; air may be admitted by the cock or valve K, to the whistle I, so as to produce a continuous sound, as in the ordinary steam-whistle, but by rapidly opening and shutting the cock or valve K, continuous thrilling sound is produced, which can be varied so as to attain a considerable extent of scale or gamut, so as to produce various distinct audible signals; this is effected by causing the plug L, of the cock K, to rotate rapidly by means of a wheel M, gearing into a pinion N, on the spindle of the cock; the wheel M, which is driven by hand, rotates on a stud, fixed to a triangular frame O, erected on the top of the receiver: by varying the velocity of this wheel, the difference of sound before mentioned will be produced, thereby admitting of considerable variation of sound, and consequently of separate distict signals; but in order to obtain a still more extended scale, two whistles of different size or shape is employed, so that they will produce dissimilar sounds. By rapidly opening and shutting the communications between the whistles and the receiver, as before described, (both of the pinions gearing into the same wheel) a scale will be obtained by which a still greater variety of changes may be effected, and consequently a greater number of signals may be given; the pinions should be so placed on their spindle, as to admit of being thrown out of gear, so that one whistle may produce a steady sound and the other the thrilling sound before mentioned.

A Caveat has been filed in the Patent Office at Washington for the application of compressed air to produce by machinery different sounds by an alarm trumpet; rather a better plan we think than a whistle. Elbrage Webber, of Gardiner, Maine, is the inventor of the compressed air trumpet.

To Preserve Beef Steaks.

As the warm season is fast approaching, when meat cannot be kept for more than a day or two in a fresh state, it will be of no inconsiderable benefit to many to be informed, that if fresh meat is rolled up in indian corn meal, it will keep fresh for four or five days The steak should be laid down in pieces from one to three pounds and each piece covered ntirely with the meal.

Canada Maple Sugar.

Great quantities of maple sugar is produced in Canada. In the parishes of St. Joseph, and St. Francois, many farmers have made from 3 to 5,000 pounds, and 300,000 pounds have been made in those two parishes.

The Chinese have a notion that the soul of a poet passes into a grasshopper, because it sings till it starves.

RAIL ROAD NEWS.

Sackets Harbor and Saratoga Rail Road.

At the last session of the Legislature a company was created with power to form a road from Sackett's Harbor in Jefferson, Co., to Saratoga Springs. This road will open a direct communication between Lake Ontario and Boston, as well as New York. It will pass through a country now thinly settled but the lakes and creeks will supply New York with salmon and trout for a century to come. The State has sold to the company 250,000 acres of land at an extremely low price with a view of aiding the enterprize. It will be a means of bringing down immense quantities of fine lumber. The distance from Sacketts Harbor to Saratoga Springs is about 140 miles.

Progress of the Philadelphia Road.

The company which has this great work in charge appear to be pushing it with considerable energy. The contracts are all progressing as rapidly as is consistent with economy, and the road will be put in action as far as Lewistown during the ensuing winter. The line to Huntingdon will be ready for the rails early next summer. The light work between Huntingdon and Hollidaysburg will be contracted for in time to be completed as soon as the points now being commenced are ready. This arrangement for the work has been made in order to bring capital expended into activity with as little loss of interest as possible. It is expected that the road will be ready to Huntingdon in the summer following the present, and to the portage by the opening of navigation the ensuing spring.

Mobile and Ohio Railroad.

The books of subscription to stock in the Mobile and Ohio railroad were open three days in Mobile. and the amount subscribed already exceeds $250,000. And this has been taken almost entirely by men of moderate means, in sums of five to fifty shares. The large holders of real estate are yet holding back, with a few exceptions. But the public spirit evinced by the masses generally renders it absolutely certain that the required amount for getting the work fairly started will be raised without difficulty in Mobile, notwithstanding the extraordinary embarrassments in monetary affairs.

Albany and Buffalo Line.

The Syracuse and Auburn Railroad Company are now engaged with a strong force in substituting the heavy iron rail for the miserable flat bar now in use. The Superintendant informs us that he will have the whole road laid by the middle of the next month.

The Syracuse and Utica Co. are also busy in putting down the heavy iron, but their progress is slow, in consequence of the large amount of labor to be performed.

Jersey Railroads.

The cars from Jersey City for the Camden and Amboy Railroad now leave at 6 A. M. instead of 7 as before. A new line for Philadelphia, will leave Jersey City at one o'clock P. M.

Shortening the Mississippi.

The process of shortening a river, may appear something new under the sun, but it has actually been accomplished in the Mississippi, one of the largest rivers in the United States. During a recent freshet the river made a "bolt" through its banks at Raccourci, where there was a considereble turn, and took a straight course for the nearest point of the stream, cutting off twenty-eight miles in the length of the stream. The largest class of steamboats pass through up and down, without any difficulty. It is about four hundred yards wide, and the banks constantly caving.

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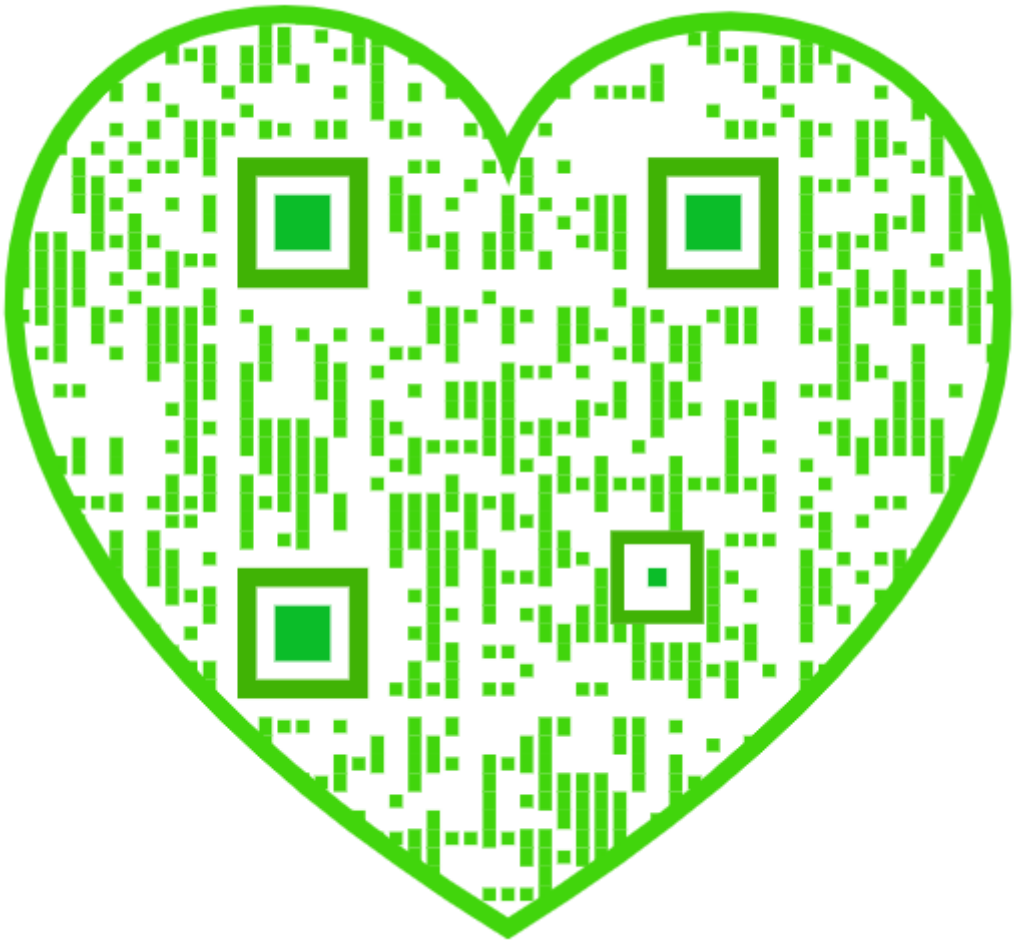

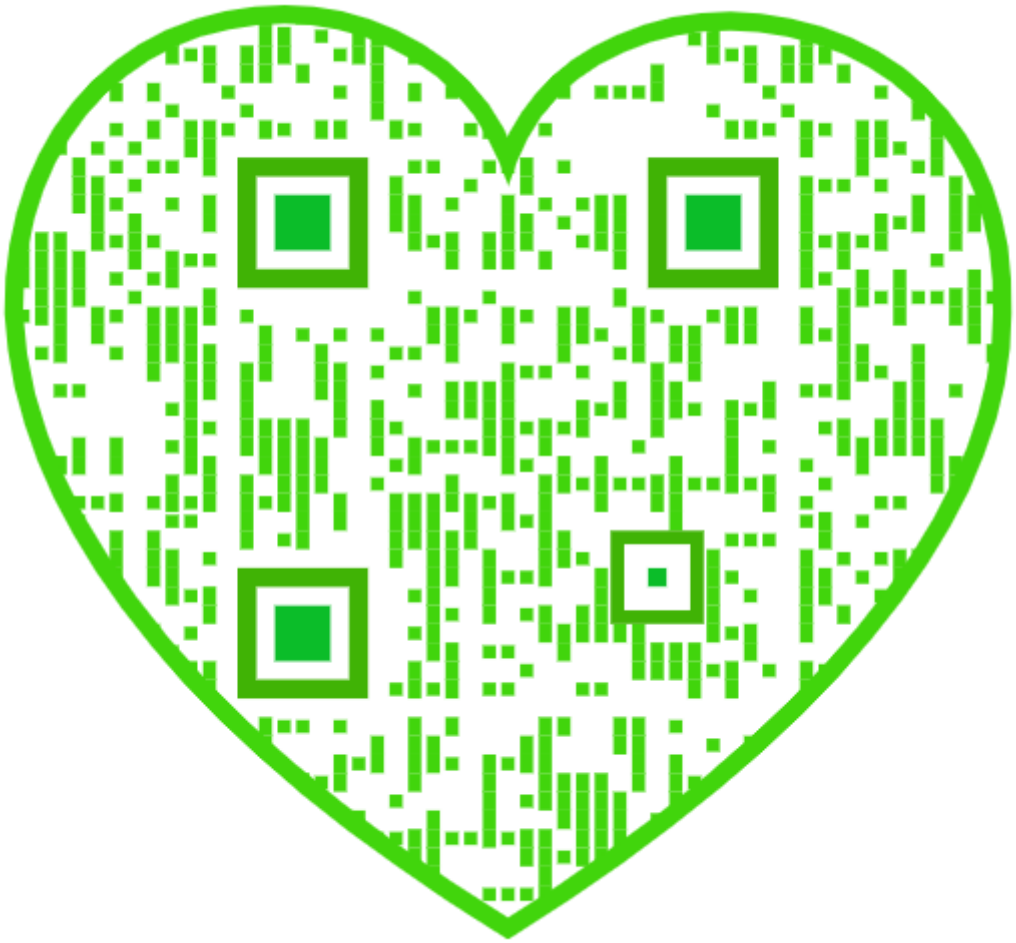

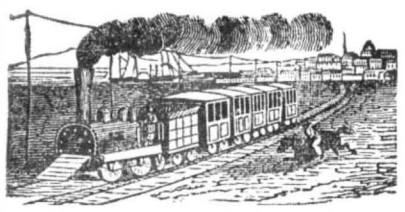

Trial Trip of the Crescent City.

The new steamboat Crescent City, built for the New York, Havana and New Orleans line, made an experimental trip on Saturday last. The weather was remarkably favorable for such an excursion, and on arriving at her starting place, Pier No. 4, North River, we found a large number of guests assembled on board.

Our attention was first directed to the internal accomodations of the vessel, which are not surpassed by any steamer afloat. The cabin is furnished in a style of inimitable richness and taste. The woodwork is of mahogany and rosewood, with cornices and mouldings of gold, and the centre of every panel contains a painting set in a circular carved frame, medallion-wise, the effect of which is exceedingly chaste and elegant There is also a ladies boudouir, in white and gold with sofas and fauteuils of rich damask satin. The dining cabin which is entirely separate occupies the forward part of the vessel, communicating with the after cabin by two passages. Two rows of state rooms magnificently furnished, extend the whole length of the vessel, and there are additional sleeping accommodations on the lower deck, by which from fifty to a hundred passengers might be accommodated. The speed and comfort with which a voyage to New Orleans can thus be made must draw much of the Northern and Southern travel from the Mississippi and Ohio route.

Leaving the pier at ten o'clock, we laid in the stream for some time, taking some delayed passengers on board, and finally passed the Battery about a quarter before eleven. The passage down the bay was most delightful; the engines worked so steadily that scarcely any motion was perceptible, and the clearness and freshness of the sky, the bright blue of the water, and the enchanting outlines of the Staten Island shores combined to heighten still more the glories of New York Harbor.

We reached the telegraph in twenty nine minutes from the Battery, a distance of between eight and nine miles. Soon after passing the narrows, a steamer was discovered outside the Hook, which was soon recognized as the Hibernia. She passed round through the spits, however, while the Crescent City took the direct way to the hook, through the Swash. We reached the false beacon in fifty-eight minutes from the Battery, and in one hour and five minutes were abreast of Sandy Hook, eighteen miles from the starting point, the engines making 14 to 16 revolutions per minute. The light-ship, a distance of twenty-five miles, was made in one hour and forty-five minutes going out, and one hour and thirty-five minutes returning. This, taking into consideration that there were 300 tons of coal on board, and that, on account of the many hundreds of passengers, the boat could not be kept properly trimmed, is equal to the speed of any steamship afloat.

There was but a slight swell on the sea, and very few of the passengers felt any inconvenience from the motion of the vessel. The steadiness with which the engine worked, was remarked by all on board—nothing of that jarring motion being perceptible, which is so severe upon all weak nerves. Soon after passing the light ship, the company sat down to a handsome collation. The tables in the dining cabin, which had seats for two hundred persons, were several times filled, the invited guests numbering near six hundred.

After dinner, a meeting was organized on the after deck, of which Capt. Hudson, U. S. N. was chairman, Commander Sands, U. S. N. G. W. Blunt and others vice presidents, and Messrs. Pentz and Lambert Suydam, Secretaries. Speeches were delivered by Joseph Hoxie, Esq , Ald. Franklin, and others, and the following resolutions adopted unanimously, with loud acclamations.

Resolved, That in the judgment of this meeting, the steamship Crescent City, is entitled from her speed, safety and luxurious accommodations, to the confidence of those travelling on any route on which she may be placed.

Resolved, That the thanks of this meeting are due to Captain Stoddard, Isaac Newton, Esq. and others, for their polite and bountiful hospitality.

A number of songs were sung during the trip by an amateur Glee Club, and the music of an excellent Brass Band contributed greatly to enliven the spirits of the company.—When about thirty miles from the city, and opposite Barnegat, she was put about and returned up the Bay in fine style. She then passed down the East River to within a short distance of Blackwell's Island, when she turned about, and ran some distance up the North River and back, reaching the pier at 5 o'clock, all on board being highly delighted with her performance, and the beauty and convenience of her accommodations.

The dimensions of the Crescent City, are as follows :—Length 240 feet, by 34 feet beam ; 23 feet hold, drawing during the trip 12 feet of water ; cylinder 80 inches diameter and 9 feet stroke ; the engine has wrought iron shafts ; her boilers are of the best iron ; her wheel has 32 feet of diameter, with 9 feet face. She measures 1750 tons, being about the same size as the Hibernia.

Foreign News.

The American Steamship United States, arrived at this port, last Wednesday morning having left Liverpool on the 17th.

The news from Europe is gloomy enough —England is waiting calmly the result of foreign collisions, but her institutions are not so much threatened at the present time as they were during the old French Revolution. Ireland has not yet come to battle, although much excitement exists among all classes.—Mitchell has been found guilty of felony and committed to prison. Smith O'Brien was discharged Lord Ashburton is dead. A change of Ministry is expected in England.

A great mob had turned out the French members of the Assembly, while in session, but the National Guard was true to the Government, and the mob was dispersed. Four members of the Provisional Government have been arrested. The Moderates are supported by all the middle classes.

Austria is in a dreadful state of insurrection. The Swedes have joined the Danes against the Prussians. A severe battle has been fought between the Austrians and Piedmontese. It was not decisive to either of the armies. The insurrection in Poland is quieted, but Russia is still quietly concentrating her troops on the frontiers. The Emperor of Russia will not fail to take advantage of the revolutions in Germany.

The Pope has been imprisoned by the inhabitants of Rome. His sacred person is no more respected.

Southern Manufactures.

We have a case in point to prove beyond cavil that cotton goods can be manufactured cheaper at the south than in the northern states. The United States government, we learn from the Savannah Republic, has made a contract with the Milledgeville, Ga., factory for the delivery of 300,000 yards of cotton osnaburgs. The contract was closed after a careful comparison by an agent in New York, of the Milledgeville with like fabrics from other factories.

Mexican Idol.

A curious Mexican idol, representing a woman, in rough stone, and arrayed in singular habiliments, about 4 1-2 feet high, has just arrived at New Orleans. It is a present to the city from a distinguished naval officer. Some fancy that it is the statue of the wife of Mango Capac, the founder of the Mexican Nation.

A Frenchman gasconading over the inventive genius of his country, said, "We invented lace ruffles." "Aye," said John Bull, "and we added shirts to them."

The annual value of the mineral produce of England, amounts to about twenty millions.

Chloroform and Ether.

Two amputations were performed last week at the Bellevue Hospital of this City, the one that of an arm by Dr. Cox, one of the Assistant physicians ; and the other, that of part of the foot, by Dr. Childs one of the visiting Surgeons. In both cases the patients were first rendered insensible to pain by the use of Chloroform diluted with four times its bulk of sulphuric ether, with which a sponge was moistened and held to the nostrils by a Resident Physician, Dr. Reese, who has had extensive experience in the use of both chloroform and ether, although this was the first time these agents had been used here in combination. The complete success of the first trial of the mixture, in both cases, would seem to confirm the inference that the Ether alone is too slow and uncertain, while the Chloroform by itself is too rapid and hazardous in its effects, and hence the union of these two agencies has been considered as likely to be more gradual and safe. Both the patients were kept in a state of complete insensibility during the operations, and recovered from all the effects of chloroform in ten minutes afterwards.

Method of Washing.

Soak the clothes over night in weak suds ; to a four pail kettle of water add a tablespoon full of soda, (carbonate of soda of the shops) dissolved ; wring out the clothes, put them into the water while cool, and boil them an hour, take them then into a tub of warm water, rub them well and afterwards rinse thoroughly. This will not do for woolens or calicoes. Calicoes should never be boiled or washed in warm soap suds. Strong cold suds is best for calicoes, but very delicate colors should be washed in cold liquor of boiled bran strained through a cloth. Woolen goods should never be washed in soap suds except the soft kinds, such as shawls and carpets.—The suds should always be cold, and well rinsed out of the goods or else they will soon turn yellow, or have a flour looking surface.

Composition of Corn.

Starch 28.40, nitrogenized matter 4.80, fat matter (oil) 35.60, coloring matter 0.20, cellular tissue 20.00 dextrine 2.00, various salts 7.20, loss 1 80.—100.00

No other grain is so well adapted for fattening animals as Indian corn, and by grain driers preserving it from the effects of sea voyages, we may expect that this grain will yet be shipped in large quantities to England for the fattening of their cattle, as they now appreciate its value.

Butter.

Dr. Ure remarks in one of his recent works, "it is computed a cow which gives eighteen hundred quarts (English) of milk per annum, eats in that time eight thousand pounds of hay, and produces one hundred and forty pounds of butter. Two pounds and a quarter of hay corresponds to one quart of good milk ; and a cow which eats sixteen thousand five hundred pounds of hay, will produce three hundred pounds of butter per annum."

Manufacture of Pins.

Brown & Elton, of Waterbury, Conn., have an improved machine for the manufacture of pins, in operation, which turns out two barrels of pins per day A barrel contains 4,000,000 pins ; consequently 8,000,000 are manufactured each day, or 48,000,000 a week. The machine is perfect and simple in its operations. The wire is run into the machine from a reel, cut to the requisite length pointed, headed, and made a finished pin by one operation. From this machine they fall into the hopper, or the sticking machine, as it is called, in which they are arranged and stuck upon the papers, and come out perfect, only requiring to be packed to be ready for market.

Gone to Pot.

The operators of one of the English lines of Telegraph, some time since, sent the following over the wires :—"The King of Prussia has gone to Pot"—and then there was a break—in a moment or two the communication was resumed and the letters, "sdam," were transmitted, which at once explained the whole difficulty—the King had gone to Potsdam.

Sand.

It was the remark of a sage, "do not despise small things." How true is this expression when used in reference to the dust beneath our feet. Liebig has placed glass as one of the revolutionizers of the world—a great agent in the cause of civilization. Well glass cannot be made without sand. Our castings, the finest and most mighty, are moulded in sand, and even the metals could not be reduced from some of their ores without sand as a flux. In copper smelting, glass is formed to dissolve the iron which is formed in the copper ore, so as to leave pure copper,—hence to sand we owe the possession of the metals.—The blacksmith uses sand to effect the welding of his pieces of malleable iron ; and in the reduction of some iron ores sand is indispensible. We well know the great value of iron, but we place little value upon sand, yet were it as scarce as gold we might even place a higher value upon it than we do upon that metal, as it is and can be applied to a far greater variety of purposes than any metal.

Whiskey and Grain.

By in fact of Parliament passed during the last year, no more breadstuffs can be distilled into alcoholic liquors in Great Britain and Ireland. If the English distiller, formerly consumed Twenty-five Millions of bushels of grain, to supply his distillery under the old state of things he now requires none of this grain whatever, because he cannot use it, and the Twenty-five millions are now on hand to work into bread for the inhabitants of the British Islands.

Baltimore Mechanics' Fair.

We have been informed that the Mechanics Fair held last week and this, in the city of Baltimore, Md., was not an exhibition of the Mechanics' Institute of that city, but a Fair got up by a committee of citizens. A number of inventors who went from a great distance at much expense have been much disappointed, as they expected there would have been a regular committee to decide upon the merits of the machines, &c., and award appropriate prizes. There was no such committee and no prizes awarded.

Engineers of Steamships.

We see it stated that in consequence of the gross mismangement that has prevailed in steam vessels, some of the New York engine builders refuse to contract for engines, unless they can have a voice in the selection of the engineer who shall work them.

Whether there has been mismanagement or not, we cannot tell, but the engine builders have acted wisely, if they have come to the determination mentioned above.

Antimonial Paint.

Mr. J Forrest, of Liverpool, England, has discovered that the white oxide of antimony is superior as a body paint to the white oxide of lead without any of its deleterious qualities. It does not become yellow like white lead, and weight for weight, it spreads over a larger surface than lead. No patent has been taken out for it. The discoverer has made a present of it to the public. The old chemists called antimony their lead.

Evading the Law.

The tavern keepers of Syracuse have adopted a very ingenious mode of getting on one side of an ordinance, lately passed by the Common Council, prohibiting the ringing of dinner bells in the street. One man stands on the sidewalk shaking a bell without a clapper, and another stands within the door ringing one, loud enough to attract the attention of all stragglers, and the pantomime of the fellow outside directs them to the place of eating.

We have on hand some samples of the work done by the unbranning machine of S. Bentz, Esq. of Boonsboro, Md. The samples are beautiful.

The Newport Mercury has commenced its eighty-seventh volume. It was started by James, the elder brother of Benjamin Franklin. What a history its pages must be.

Some beautiful specimens of pearl have been found in the Ocamulgee river, near Macon, Georgia.

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Niello-Metallic Engraving.

Ornamental art is by no means sluggish in its movements, it expands its arms in the most unheard of directions; and, despite the allegations of the world of grumblers, it becomes naturalized amidst the every-day scenes and processes of domestic life, where once its shadow never fell. Germany has just added another promising branch to the flourishing parent stem, which gives fair promise of a luxuriant growth. We refer to the new method of producing ornament on metal surfaces, by what is termed the Niello-Metallic manner. This invention, which is applicable to the production of ornament on a vast number of objects, is as follows:—The surface to be ornamented is first covered with an etching ground, as is ordinarily done in copperplate engraving: the design is then drawn with a needle point, and etched with an acid solution. The etching ground is then removed very carefully by a proper dissolving fluid, as oil of turpentine, or ether, and the object being washed perfectly clean, is submitted for a moment to the action of a week acid solution. The next part of the operation consists in the depositing of the article in a galvanic plastic apparatus, until its surface is galvano-plastically covered: the etched lines being filled up with the metallic deposit. When this deposit is so thick as to reach as high or higher than the plain surface of the metal ground under process of ornamentation, it is removed, and the layer which has been deposited by the operation is ground or planed off to the natural level of the object, leaving the etched lines of the design full. A steel plate, with a galvano-plastic deposit of gold, gives a niello-gold ornament according to the etched design, and in like manner copper, or german-silver, may be treated. The process admits of the finest lines being etched, and inlaid close by broad planes in the galvano-plastic way, and with any number of different colored metals. If it is intended to produce a design in various colored metals, this may be readily accomplished by executing the etched design for each metal separately, the object being submitted in turn to the different galvano-plastic troughs of the ornamenting metals. In addition to this, if the etching is executed in broad lines, a variety of colored ornaments may be produced by one etching; so after the planing operation, the last deposit would appear as a single line in the middle, and the profiles of the first would represent fine borders. The invention possesses the grand merit of extreme flexibility, as its details may be modified so as to produce an immense variety of ornamental work. For such articles as watch-cases, gun-barrels, swords, metal-boxes, and the generality of goldsmiths' wares, the facility and beauty of its applications are very obvious.

Oxygen.

It is a universal fact in chemistry, that when oxygen unites in excess with any number whatever, the product is always an acid, and it is for this reason that oxygen was formerly considered the only acidifying principle in existence. Now, it has since been found that hydrogen is as much of an acidifier as oxygen, and that acids may be formed without a particle of oxygen entering into their composition. We should, therefore, expect to find the acidity of the substances thus formed owing to oxygen, hydrogen, or some single universal cause. This is accounted for by considering oxygen an hydracid with a composition similar in its form to the hydrochloric or any of the hydracids. This view, while it satisfactorily explains all the conditions demanded, shows its true composition. If oxygen be an hydracid with an atomic weight of 8, it follows that the atomic weight of the substance united with hydrogen must be 7, and oxygen must be a compound, and may be ranked as an hydracid belonging to the same family with the hydrogen acids of chlorine, bromine and iodine.

Wealth.

A compost of the dirt of trade, mixed with the sweat of labor. If spread over the surface of society it does good; but when amassed in heaps, it scorches every thing that it touches.

Banvard, the Artist.

The name of this distinguished artist is undoubtedly familiar to every one, as the author of the LARGEST PAINTING IN THE WORLD,—the great three-mile picture, the Panorama of the Mississippi. His eventful life is a lesson of perseverance amidst difficulties, which all who would rise in the world will do well to remember. Though still a young man of only 27 years, he has raised himself from a poor wandering boy, to the possession of a princely fortune and the reputation of having accomplished with his own hand, *the greatest work of art ever executed by a single individual.* Above we present his portrait; it is an excellent likeness, and a few lines of his history to accompany it will not be uninteresting. He was born in the city of New York where he received a good education, and is descended from an old French family who were driven to this country many years ago by persecution. When Banvard was fifteen years of age, his family met with a severe loss of fortune. His father lived just long enough to see his property, collected by frugal industry and perseverance, swept from him by the mismanagement of an indiscreet partner, and his family turned houseless upon a pitiless world. John then went to the West, poor and friendless. He arrived at Louisville, Ky., and procured a situation in a drug store. Instead of making pills, his employer would often find him with a piece of chalk or coal, sketching the likenesses of his fellow clerks upon the walls of the rooms, where they were putting up medicines. His employer told him he could make better likenesses than he could pills. John thought so too, and so "threw physic to the dogs," and left the druggist.—Time passed on and he dreamed of being a painter. He had read in some foreign journal that America could boast the most picturesque and magnificent scenery in the world, but that she had not yet produced an artist capable of delineating it. On this thought he pondered till his brain began to whirl; and as he glided along on the smooth surface of the river, gazing with wonder and delight upon the ever varied and beautiful shores, the boy resolved that he would take away the reproach from his country,—that *he* would paint the beauties and sublimities of his native land. His grand object, as he himself informs us, was to produce for his country *the largest painting in the world.* He determined to paint a picture of the beautiful scenery of the Mississippi, which should be as superior to all others in point of *size*, as that prodigious river is superior to the streamlets of Europe, a gigantic idea! The most serious difficulty in the way of commencing his great project was a want of money. After passing through a variety of curious adventures he finally became master of fifty dollars, which by several fortunate little speculations finally increased to several thousands, and he now determined to commence his painting. He started from Cincinnati in the spring of 1840 and descended the river in order to make the necessary drawings. For this purpose he had to travel thousands of miles alone in an open skiff, crossing and recrossing the rapid stream, to select proper points of sight from which to take his sketch; his hands became hardened with plying the oar, and his skin as tawney as an Indian's, from exposure to the rays of the sun and the weather. He would be weeks together without speaking to a human being, having no other company than his rifle. When evening began to approach, he would select some secluded sandy cove, draw out his skiff from the water and repair to the woods to hunt his supper. Having killed his game he would return, dress, cook, and from some fallen log would eat it with his biscuit, with no other beverage than the water of the noble river that glided by him. Having finished his lonely meal, he would roll himself in his blanket, creep under his frail skiff, which he turned over to shield him from the night dews, and with his portfolio of drawings for his pillow, and the sand of the bar for his bed, he would sleep soundly till morning. In this way he spent over four hundred days, making the preparatory drawings.

During the time this undaunted young man was transferring his drawings to the canvas. He had to practice the most rigid economy, lest his money should give out before the picture was completed. He could not even afford to hire a menial assistant to do the ordinary labor about his paint-room; and when the light of day would recede from the canvas instead of taking relaxation, he would be grinding his colors or splitting his wood for the ensuing day. Still, with all these self-denials and privations, his last cent was expended long before his last sketch was transferred te his last piece of canvas. He then endeavored to get credit for a few pieces of this material from the merchant of whom he had purchased the principal part for his painting, and with whom he expended hundreds of dollars while speculating on the river, but in vain. Still not discouraged, he laid his favorite project aside for a time, and sought other work. Fortunately, he obtained a small job to decorate Regalia for a Lodge of Odd Fellows, and with a light heart went cheerfully to work to earn the money which would purchase the material to complete his picture. With the avails he then procured the much needed canvas.

At last his great project is finished? the Mississippi is painted! and his country now boasts the largest painting in the world! But the trials of our persevering artist were not all passed. The history of the first exhibition of this wonderful production is curious, and furnishes another illustration of the necessity there is, never to despair.

The first night he opened his great picture for exhibition at Louisville not a single person thought it worth while to visit it. He received not a cent, the night was rainy. But he did not despair. The next day he gave away a great number of tickets to boatmen and others, until finally the great work excited admiration, and thousands rushed to see it. The painting was next exhibited at Boston, where for upwards of a year, the great artist reaped a golden harvest. His picture is now on exhibition at New York, and continues to be the wonder of all who have seen it. It is soon to be taken to Europe.

The fame of the artist is his country's property. "His genius and enterprise will be honored," as Governor Briggs beautifully remarked, "so long as the Great Father of Waters, and its numerous tributaries, continue to pour their flowing tides into the great ocean.

For the Scientific American.

Baltimore Mechanics' Fair.

Our Mechanics Fair just held has been exceedingly creditable to our mechanics. The iron work displayed could not be surpassed, at least I have never seen better and more highly finished articles at either the exhibitions of the Franklin or American Institutes.

The Treenail Machine of Mr. Mitchell, of Gardiner, Me., a cut of which appeared in No. 10, vol. 3 of the Scientific American, was exhibited and received much commendation from some of our clipper builders. An excellent and cheap knitting frame took my eye, as being just the thing for every farmer's family It is worked by a crank, and a small girl can manage it very easily. It was exhibited by Mr. J. McMullen, of this city, and I believe the price is only $15. It knits work exactly like that done by wires. Mr. Chandler's Morticing machine, a cut of which also appeared in the Scientific American, was exhibited and received much attention. In fact, these machines seemed to be recognised at once, owing to their having been presented to the public through your paper, which is taken by such numbers of our very best mechanics, those who can and do appreciate its worth.—An excellent Grain and Flour Drier, the invention of Mr. Safford, of Cleveland, Ohio, was also exhibited and was respectfully noticed. This apparatus, if I am not mistaken, was also noticed in your columns. I was particularly struck with specimens of bronzed iron, from Messrs. Gilman & Collins's foundry, Conway st. this city, especially a unique cast iron chair. It is impossible for me to notice or enumerate all the useful and beautiful articles exhibited, from Fairbank's patent Scales to Broadbeck's fine Silk samples. Specimens of needlework, chemicals and jewelry were exhibited in great profusion, and I am confident that if this Fair is to be any guide to future exhibitions, Baltimore will not yield the palm in the exhibition of useful inventions to any other city in the Union. The Fair has been held in Washington Hall, and considering all things, the arrangement was very good.

My object in this letter is principally to call the attention of our mechanics to exhibitions of this kind, as I believe they tend to elevate our character both in our own eyes and in the eyes of other nations. I do not know but many improvements in the mode of exhibition may yet be brought out, but certainly our mechanics are made both wiser and better men by such exhibitions.

Yours, with respect, J. R. M.

Baltimore, Md. May 25, 1848.

For the Scientific American.

Mr. Editor:—In my weekly examination of your valuable paper, I find in that of May 13th, that Mr. C. of Gardiner, Maine, has taken the liberty of answering through the medium of the Scientific American the inquiry of Mr. James Johnson of your city, in regard to my machine for turning irregular shapes or forms, in which he ventures some remarks, which lead me to the conclusion that he does not fully understand the principle of Blanchard's machine or my own. If Mr. C. will take the trouble to examine again the machine now building by Mr. Webber, he will readily perceive that Mr. Webber's machine is made up mostly of combinations, which are not original. He will also find, if I am not much mistaken, that the balance of Mr. Webber's machine is a multiplicity of extra combinations and additions. If Mr. C. will again examine the objections urged by him against Blanchard's machine, I will venture the remark that he will find them wholly erroneous and unfounded. Mr. C. mentions that Mr. Webber has an improved method of chipping from the block. This may be so, but if any person will take the trouble of examining his machine by the side of Blanchard's machine and my own, I have no doubt they could readily discover a close resemblance. I think that Mr. C. has misunderstood the opinion of the best mechanics when he asserts that in their opinion Mr. Webber's machine will accomplish the long desired object. On a strict enquiry of the mechanics who have been favored with a view of his machine, I find that the mechanics spoken of universally make one very appropriate qualification to Mr. C.'s remarks, viz. that if Mr. Webber will abandon his extra combinations and use only the principles of Blanchard's machine or my own, he will then be enabled to turn irregular forms. If Mr. W. will bring to light any new invention, anything valuable, even if it be a machine for turning irregular forms, on some new principle not before invented or in use, he shall have my best wishes (and if need be, my help in a cause so honorable to himself and beneficial to the public,) but I will defend what is my own by just right of invention.

W. M. DAVIS.

Portland, May 15, 1848.

Care of Fruit Trees.

Do not forget to apply leached ashes, charcoal, and oyster shell lime to the roots of your fruit trees. See also that the moss and scaly bark is carefully removed from their trunks.

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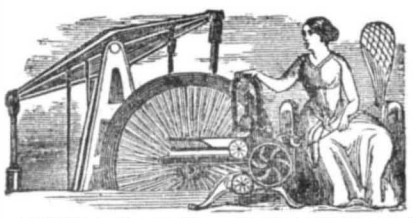


New Inventions.

Malleable Iron.

Among the various improvements in the working of iron which have been patented within the last few years, more particularly with a view to obtain a strong, tough, and elastic material for railway axles, wheel tires, and other parts of machinery where great shocks are unavoidable, we observe a patent has been taken out in England by Mr. Witherell of this State, for a machine for manufacturing iron under various forms, and imparting to a twist, by which the fibre is laid in a spiral direction instead of longitudinally, as hitherto has been done. By this means the iron is rendered more available for resisting abrasion, and all other such forces as are destructive to the fibre. Hitherto, iron has been made to pass through rollers, in reference to the destruction of the fibre, parallel. In this operation, the patentee gives the iron the necessary twist, and afterwards hammers, rolls, or otherwise works it into form by heat, in the usual manner. The machine consists of a powerful bed-plate, with proper standard-bearers, for carrying the working gear. This consists of a pair of common rollers, through which the bar to be twisted first passes. Directly opposite these are another pair of rollers of the same dimensions, and with the grooves through which the bar passes of precisely the same size. These last mentioned rollers not only rotate on their own axis, but they, with the frame and gearing in which they work, revolve in a vertical direction; and as the bar of iron is forced or drawn through both pair of rollers, the latter by their joint-vertical motion, in addition to their own rotation, twist the rope into a form precisely similar to that of a wire-rope, after which it may be worked up into any form in the usual manner. Its fibre and texture will be found similar to a twisted gun barrel, and its tenacity and toughness greatly increased.

In the northern parts of this State there are as fine iron ores as there are in the world and abundance of the best timber to make charcoal. With all these advantages over coke manufactured iron, a superior article is not produced. We believe that as good iron as the Swedish, might be manufactured here, were the processes conducted by skilful practical men.

Escape Fire Ladder.

Mr. James Cox, of Pennsylvania, has invented an escape fire ladder, which is represented to us as being very effective for the purpose intended. The ladder is in five sections or slides, is mounted upon wheels, and when the slides are drawn down or fitted in their beds, occupies no more space than the body of a vehicle proportioned to the size of the wheels. The tongue of the carriage is so constructed that it may be used as an elevator to give any degree of inclination to the ladder. The ladder itself is moved by a rope and pulleys. The rope is attached at the bottom of the first slide to an axle worked by a crank, and passing over a pulley is again fastened to the bottom rung of the second section or slide. When the crank is turned the rope is wound around the axle, ane as its length is shortened, it of course raises the second section, to which it is fastened, from its bed to the top of the first section. The other sections are raised in the same manner. The ladder may be elevated in a second or two to its full length, and be made of any height by increasing the length of its sections. Wire rope may be used as a protection against fire.

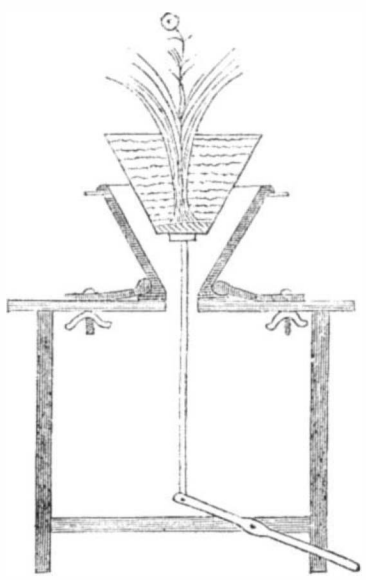
Cannon Primer.

Mr. William K Ashard, of this city, has submitted to the Naval Bureau at Washington, a Lock and Primer, for cannon and other ordnance. The Primer is a straight stem of paper, loaded with powder, and has a shoulder which rests on the side of the touch hole.—The lock is a simple lever, which is brought down with force upon the shoulder of the primer, by means of a small rope attached, and the primer is ignited and the gun discharged. This will do away with the match and the government will probably secure it.—The expense of the lock and primer is but trifling. The latter can be furnished for $3 per thousand.

New Lever Press.

We have seen a drawing of a new lever press, invented by Mr. B Newbury of this State, and hope before long, to present an engraving of it. In place of the common upright screw, he inserts an iron column, with niches or cogs upon two of its sides. Knuckle joints fit into these cogs, and are operated by a lever. By every movement of the lever, up or down, the column is forced down with immense force to the distance of one cog. The column is drawn up by means of a rack and pinion. Mr. Newbury has constructed a working model.

Improvement In Flower Pots.



In the culture of flowers it is of much importance that the earth in which they are placed, should be occasionally changed and renovated. It is also an advantage to place them in the garden during the warm months. The above is the drawing of an improvement intended chiefly for the sake of convenience in removing plants. The pots are made with rims around the bottom, so that by having two sliding springs attached to the potting bench, the rims being placed under in the manner seen above the pots are thus held firmly to the bench. The foot moves the lever, which raises the plant, the pots having moveable bottoms. Both hands are thus at liberty to receive the plant, which is a great convenience. These springs can be easily moved to suit any sized pot, as the screws will hold on any rim. Another improvement consists in placing a moveable zinc rim on the top edge of the pot for protecting plants from slugs, because the insect will not pass over the rims, as the galvanic action of the zinc causes them to retreat as soon as their horns or feelers come in contact with the metal.

Improvements in the Manufacture of Iron.

The attention of men of science has of late been much devoted to improvements in the mode of manufacturing iron, both as regards economy in the smelting department, and also in producing the finished material, at the least possible cost. Among the improvements which have lately taken place, that of Mr. Low, an English gentleman, will most decidedly rank as one of the first in importance. By Mr. Low's process, pig iron can be puddled and made into very superior flushed iron without the process of refining, with equal facility, and the loss in making a ton of finished bars from pig iron will be less than one half that made in the ordinary manner. His process is a simple one, and consists in giving the raw material in its process of manufacture, a much less degree of carbonization or oxydation, for this purpose he uses black oxide of manganese, plumbago, or gramphite, charcoal and nitrate of either potash, soda or lime, usually employing saltpetre These ingredients are mixed together in the proportions specified by the patent; and to every charge of ore in the blast furnace likely to produce 480 lbs. weight of metal, he uses 66 lbs. of this mixture. In the puddling furnace he applies it to the metal in a fused state, by throwing upon the surface two or three pounds at a time, and gradually incorporating the requisite quantity. His patent extends to the application of this mixture to the manufacture of cast steel, from malleable iron, adding two or three pounds to every 30 lbs., of steel when in the melting pots.

A New Water Cement.

Major Gen. Pasley of the British Army, has discovered a new method of making a water cement, which from its cheapness and the abundance of material as well as the ease with which any person can make it, must prove to be exceedingly valuable to the people of every nation. The composition is: Four parts by weight of chalk and five parts by weight of blue clay mixed well together.—The manner of testing the strength of this cement was as follows. An experimental pier was commenced horizontally from a wall by means of the cement only as a support. A small rectangular portion of the supporting wall, sufficient for receiving the first brick, was scraped clean, the mortar being removed from its joints to the depth of half an inch, the space being filled with pure or net cement, the first brick being attached to it by fresh cement applied before that in the joints had set. When a fresh brick was added, it was immersed for half a minute in a bucket of water, the face to which it was attached being also wetted; after which the cement was added to both surfaces, first in a thin coat to the wall, or fixed brick, and then in a thicker layer to the new brick. After the setting of each brick, it was held up by hand five or ten minutes, in order to allow of the setting of the cement. In this manner, one brick was applied daily, until the pier attained such a length as to break with its own overhanging weight. The number of bricks sustained by this cement was 31, amounting to a length of six feet eleven and a half inches, and weighing 186 lbs. A composition of three parts chalk and four parts of blue clay, supported twenty eight bricks, weighing 171 lbs.

For the Scientific American,

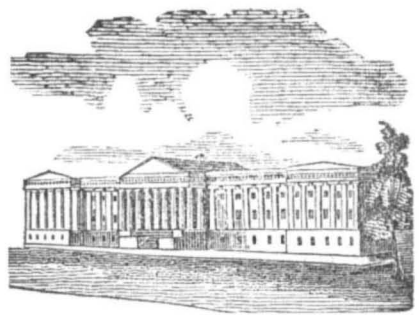
The French Sewing Machine.

The inventor of this machine is an humble artisan who has a great mechanical genius, and who has been engaged for thirty years in the perfection of his invention. He received a patent for it in France a few years ago, and it is said that for more than twenty five years he sought in vain to make it work, and that the thought flashed all at once upon his mind regarding its true and perfect principle. The machine was introduced into London some time last year and has attracted much attention in that city. It is very cheap. Some are sold for twenty dollars and the price varies from that to thirty. They are sold by a Mr. Schmidt, No. 28 Sutton street, London. The machine is fixed on a table, and is a very small box. It is worked by a treadle, and every movement of the foot produces a corresponding action in the needle; so that 300 stitches can easily be made in a minute. The hands are merely used to guide the material being sewn, and by turning a screw the size of the stitch is instantly varied. The machine will sew, stitch and form cords and plaits.—The stitch is the tambour or crotchet stitch. The whole value of the invention consists in making machinery do what was hitherto done by the fingers, and thus resolving a problem supposed impracticable.

The beauty of this machine is that it can work button holes and embroider. M. Magnin who exhibited it in London wore an entire suit worked by it, consisting of coat, vest, pants and all their appurtenances. To France belongs the credit of this invention. M. Thimonnier is the name of the inventor, and his fame will go down to posterity with that of Jacquard. D. C. L.

New Engines.

Messrs. Joice, of Deptford, England, have invented a combination pendulum with one of Woolfe's condensers, which is said to work most beautifully.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 23, 1848.

To Edward Warren, of New York City, for improvement in Threshing Machines. Patented May 23, 1848.

To Henry Bewley, of Dublin, Ireland, for improvement in making Flexible Syringes, Tubes, &c. of Gutta Percha. Patented May 23, 1848. In England, September 4, 1845.

To Charles Hancock, of Grosvenor Place, England, for improvement in making Bands or Belts of Gutta Percha. Patented May 23, 1848. In England, May 15, 1846.

To Amariah H. Fitch, of Cuylersville, N. Y., for improvement in Pumps for raising water. Patented May 23, 1848.

To Richard Archibald Brooman, of London, England, for improvement in making articles of Gutta Percha by moulding, stamping and embossing. Patented May 23, 1848. In England, March 11, 1848.

To Charles Keene, of Sussex Place, Regent's Park, England, for improvement in making Boots, Shoes, &c. of Gutta Percha combined with other fabrics. Patented May 23, 1848. In England, May 29, 1845.

To Jacob Haerlter, of Pottsville, Penn., for improvement in Threshing Machines. Patented May 23, 1848.

To William Wilmington, of South Bend, Indiana, for improvement in Grain Separators. Patented May 23, 1848.

To Alonzo D. Perry, of New York City, for improvement in Fastening Mail Bags. Patented May 23, 1848.

To Moses D. Check, of Memphis, Tenn., for improvement in Presses. Patented May May 23, 1848.

To William Mix, of Prospect, Conn., for for improvement in the manufacture of Spoons. Patented May 22, 1848.

To James Birdsall, of Hamorton, Penn., for improvement in Clover Hullers. Patented May 23, 1848.

To Jehiel Bates, of Charleston, S. C., for improvement in Threshing Machines. Patented May 23, 1848.

RE-ISSUE.

To Daniel Clow, of Port Byron, N. Y., for improvements in Wheat Fans, (two patents.) Patented June 16, 1846. Re-issued May 23, 1848.

To Samuel Loveland, of Oswego, N Y. for improvement in Floating Dry Docks. Patented November 7, 1846. Re-issued May 23, 1848.

INVENTOR'S CLAIMS.

Paddle Wheels.

By E. J. McCarthy, of Saugerties, N. Y. Improvement in Paddle Wheels. Patented December 28, 1847. Having thus fully described my improvement, I wish it to be understood that I do not claim moveable paddle wheels, as they have been before made and worked in many different ways; but what I do claim as my invention and desire to secure by letters patent is the construction and arrangement of the apparatus for moving the paddles, substantially as described, consisting of a sliding bar, moved by an eccentric that is connected by means of a stud, with a slit in jointed brace, to which the paddle is affixed so as to cause the paddles to enter the water radially and thus remain to the centre of their action, and then to fall back into an inclined position and leave the water freely, the action of the paddle wheel aiding the change.

By the process of drying sixteen and a half pounds of water have been expelled from one barrel of flour—a saving to the farmer in the expense of transportation.

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NEW YORK, JUNE 3, 1848.

Labor Saving Machinery.

There are many who decry labor saving machinery and condemn its use as being injurious to the interest of working men and a benefit only to men of capital, by destroying the occupation of the former class through the agency of capital doing that kind of work by machinery which had previously been done by manual labor. These views are entertained by many who have a warm side to the working man's welfare. We have charity to believe that such views are held in sincerity, but in ignorance of the subject in all its details. If labor saving machinery is injurious to the interest of the working man, at what point or machine shall we commence the proscription? To that paper which fulminates against labor saving machines, we say, throw your type into the ocean and dash your press to pieces, and then you will give us some evidence of your sincerity. If any labor saving machine is to be proscribed, it should be that one on which all the rest depend. Proscribe the hammer, and then what? The farmer might turn over his furrow with his feet and the backwoodsman gnaw down the trees of the forest like a beaver. Abolish labor saving machinery and we at once become barbarians.

The whole of labor saving machinery, without a single exception, has been the means of advancing civilization and gradually elevating the laboring classes from serfs to men.—The very musket, decryed as it may be by some, was an invention which in the hands of England's plebeians, first broke the power of feudal tyranny on the field of Marston. Manual occupations are not to be created for the *mere purpose of giving* employment but for the producing of something useful. It is a mistaken notion which some political economists have "that physical labor is always necesasry to the well being of society, just because it gives people employment." Employment can only be of a benefit to society when it is directed to create something for the comfort of society. If this is not a correct view of the subject, the man who carries a stone in his hat all day long must be as advantageous to the State as he who guides the plough, or wields the hammer. Those who paid fifty cents for a yard of coarse shirting in 1815, will surely have some feeling for the friendly power loom, that has now reduced the price to twelve and a half cents. The working classes above all others, are indebted to labor saving machinery, and we look to future inventions in labor saving machinery, as being the only sure ground and hope for the future elevation of our race. We speak merely in reference to physical comforts. While there is enough to eat and drink and wherewithal to clothe the family of man, there certainly should be no suffering for want, and in whatever country there is suffering among the people, such as there is often among the manufacturing classes of Britain and some other nations, it is not because of the great amount of labor saving machinery there, but in the abuse of its benefits. We might go on step by step and fill volumes with accounts of the benefits of labor saving machinery, were it not trespassing on our rule of brevity.

Motive Power.

It is really amusing to observe the sublime mysteriousness with which some of our "oracle wiseacres" treat the science of Mechanics. With declamatory style they wrap up a vast fund of stupidity and ignorance in an *unknown tongue*, leaving those who peruse their works, not "wiser and better," but certainly much duller men. This is the reason why so few operative mechanics after the severe toils of the day, cannot sit down and read with profit such kind of works. No branch of mechanical science is less *generally* understood than momentum. The following axiom if kept continually in mind, will be a beacon to the practical mechanic. "The whole effect produced by mechanical expedients is always equal to the whole cause or labor exerted—mechanical expedients merely condense or expand labor. A power exerted over six feet and producing a result in one foot, is condensed into one sixth, and in that space the result is six times as great as the labor exerted in the same distance, and vice versa. 100 pounds raised 6 feet is equal to 600 pounds raised 1 foot, and vice versa." Thus it follows that the momentum motive power always bears exact proportional relationship to the effect produced. The power momentum may be concentrated, or spread over a wide surface, but in no case can a prime mover communicate power, or impart a momentum superior to what is possessed in itself.—Could this be done perpetual motion would be an easy matter.

Gutta Percha Patents.

It will be seen by reference to our Patent List of this week, that four English Patents for the purifying and manufacture of Gutta Percha into numerous articles have been secured in this country. All these patents belong to the American Gutta Percha Company under the management of S. T. Armstrong, Esq. The company we believe is wealthy and capable of purchasing large quantities of this most useful substance, so as to sell it at the cheapest possible rate, as well as manufacture it in the most superior manner. Before these patents were issued here, we had seen the original specifications and they contain claims to cover almost the entire ground, in fact Brooman's patent granted in 1845 is the foundation of all the others, as being the preparing process, and Hancock's next, for combinations with other substances. This substance, as we have stated before, will revolutionize the arts. All the English patents have been secured by this company at an enormous expense. The patent fee at Washington for each is no less than $500. Therefore these four patents brought $2000 into the Treasury of the Patent Office, a sum that would have secured sixty six patents for home inventions. When we consider these things and the amount paid for them in England, besides expense incurred to learn the various Gutta Percha manipulations, we cannot but wish success to this enterprising company for introducing this useful article into the United States. It is our intention to describe in some future number some of its applications regarding which the public have as yet but little knowledge.

A Good Move among Workmen.

The Pittsburg Post states that a large number of workmen in the different rolling mills in and about Pittsburg have it in contemplation to erect a new iron establishment—furnish their own capital, conduct their own business and share the profits equally. It is proposed that two hundred persons, practical workmen, should combine their capital, skill and energy, and form a company, to be governed by rules and regulations of their own adoption. Each member shall furnish $500, to be put into a capital of $100,000 with which to commence business. Each member of the association will have a particular branch assigned to him—all will be actively employed and there will be no drones or idlers. In addition to the manufacture of iron of all kinds they are thinking of establishing in connection therewith a sheet tin manufactory. We believe there is not an establishment of this kind in the United States; and persons who worked at the business in England know that the facilities for manufacturing in this country are as good as any where else. The block tin, which is principally imported from Peru, forms about 10 per cent of the ingredients of the sheet; the balance being iron, of course the manufacture will not be so difficult as some suppose.

This is a scheme that heartily commends itself to our views on such subjects. There is no other way in the world for workmen to elevate themselves but by such schemes as this. Why should they not, and why can they not, enjoy both the fruits of capital and labor.

For the Scientific American.

American Manganese.

Mr. Editor:—Having heard that the usual sources of supply of Manganese have been nearly exhausted, so that the branches of manufacture dependent on that article are beginning to become somewhat embarrassed—it may be a public service to mention to you that in a conversation with Dr. James Eights, of Albany, well known as one of our ablest Geologists, he stated that during researches made by him in the mineral region of Lake Superior he examined an extensive stratafied mass of black oxide of manganese. It was situated in the walls of a mountain stream arranged nearly horizontally, and exhibited a thickness varying from four to six feet or more. Its position was but a short distance from the shores of the lake, where they suddenly expand and form one of the most extensive, safe and commodious harbors for vessels of every description that navigate the lake. The great demand for this highly useful mineral, for various manufacturing purposes, having almost totally exhausted the hitherto well known localities, makes it a matter of considerable importance that so extensive a locality of the article remains yet undisturbed to supply the scarcity which is beginning to prevail on our Eastern board.

Respectfully yours, R. V. DeWitt.

Albany, May 20, 1848.

[The above letter from R. V. DeWitt, Esq. brings before the public the gratifying intelligence of such an abundant supply of that useful mineral, manganese. We are glad to hear of this, because we know that the future demand for it will increase with the increase of our population. From it (in a combination) is made the gas that bleaches our cloth and paper rags, and it is used for many other purposes besides, but in the manufacture of chlorine gas alone, it has revolutionized our paper manufacture, and the whole art of bleaching. Further information may be derived from either of the gentlemen whose names appear in the above communication.

Coal.

Is it really a truth after all that coal is a *carboniferous* strata—that it has been covered with *water*—that it is a self deposition of vegetable organism which had been drifted by floods to sea and lake basins and then gradually converted into coal beds? Arborescent deposits occur promiscuously imbedded at all angles in some strata and not found metamorphosed into coal.

A number of the specimens of the genus *Lepidodendron* have been taken from the very heart of one of the English coal seams, and the internal portion of the trees were composed entirely of sand stone, which forms the superincumbent roof of the coal seam.—What is the reason of this? Surely those trees in the seam had a fair opportunity of the same chemical action to convert them into coal in the middle of the seam.

Wants of the Working Classes.

Two things are required on the part of the working classes to adjust themselves to the state of society as one altering and improving: skill or practical knowledge, so that when one branch of productive labor fails from improvement or fluctuation, they may resort to another, and economy, that they may provide against "a rainy day," and instead of seeking relief in combination and outrage, have the means of support until the arrival of more favorable times. These qualities will appear only where there has been some training of the head and heart. Let then the mind be taught to think and the judgment be fitted for correct decision, and the difference will be manifest as it is now in cases occasionally witnessed; the intelligent will not be dupes of demagogues or incendiaries, and the thrifty will discover a higher tone of feeling than their improvident neighbors.

Glass Floors.

There are some disputes regarding the patent right for glass floors. Mr. Pepper, of Albany, Messrs. Hewins & Perkins, of Hartford, Ct., and Dr. Valentine of this city, all lay claim to the invention. We are not aware of a patent for this application of glass for flooring and think such a patent would be difficult to sustain.

Music of the Hammer.

But, after all, were we to seek out only one sound in the world, as a representative or expression of life, business, health, vigor and improvement, we should certainly name the sound of the hammer. What on earth is there that is more cheering? It is the very note of preparation for business, and gives a thrill that is peculiar to itself, and to all that lie inert around it.

What brings the morning so fresh and vivid to the mind of the sluggish as the hammer which sounds from the neighboring roofs. It is the veriest reproach an indolent man can have, and speaks straight to the heart, in those quiet, manly tones, which only the sincerest friendship employs. And then, how much is in that sound besides! What a range can fancy take when such a sound comes forth! There is the workman on the roof of a new building, or in the shop of a mechanic, or the store of the merchant. It is the carpenter, the blacksmith, the tinman, the jeweler, or the worker in marble; all industrious, all busy. The "sound of the hammer" is the note that forewarns the world of the whereabouts of the hard working man. About it there is no concealment. The man he owes, hears it, and waits contented, feeling that he is safe. There is a spirit in the sound of a hammer which affects more or less nearly all the world. Some people go through life without noticing one sound from another in the multitude of noises around them; but we will answer for the sound of the hammer, that no one ever heard it without being conscious of an expression either positively pleasant or certainly painful. Mechanics should stick to their hammers for they are sentinels of industry and bestowers of praise.

The hammer is an instrument of power and greatness. By it are forged the sword of contention, and the ploughshare of peace. By it are forged the press of the free, and the shackles of the slave." Let our mechanics in the emblem of the hammer, always behold an instrument to unfetter the darkness of the mind and to drive truth and knowledge home to the hearts and consciences of those who look sneeringly upon labor as the Smith forges the nail or the spike which unites together the timbers of our leviathans of the deep, or the timbers of the fabrics that canopy the proud, the fair, and gay.

English Horses.

By a late census of England, the number of horses in England has been found to have diminished from 1,000,000 to 200,000 within the last ten years: in other words, the Railroads have dispensed with the use of 800,000 horses, and these animals, as well as oxen are now scarcely used for transportation, and thus the grain and food of the 800,000 horses formerly consumed have been dispensed with, and the land used for the growth of hay and grass is devoted to the growth of grain alone for the supply of bread.

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Arts, Manufactures and Machinery.

(*Continued from No.* 36.)

The economy produced by Manufactures and Machinery.—Cutting glass with the diamond.—Production of valuable matter from worthless materials.—Distinction between a tool and a machine.—Longitudinal arrangement of needles, arranging the points in the same way.—Manufacture of hob nails.

The next use of Machinery and Manufactures is—*the economy which they produce in human time.* So extensive and important is this effect, that we might, if we were inclined to generalize, embrace almost all their advantages under this one head; but the elucidation of principles of less extent will contribute more readily to a knowledge of the subject, and as numerous examples will be presented to the reader in the ensuing Nos. we shall restrict our illustrations upon this point.

The art of using the diamond for cutting glass has undergone, within a few years, a very important improvement. A glaziers apprentice, when using a diamond set in a conical ferrule, as was always the practice about twelve years since, found great difficulty in the art of employing it with certainty, and at the end of a seven years' apprenticeship, many were found but indifferently skilled in its use. This arose from the difficulty of finding the precise angle at which the diamond cut, and of guiding it along the glass at the proper inclination when that angle was found. Almost the whole of the time consumed and of the glass destroyed in acquiring the art of cutting glass may now be saved by the use of an improved tool. The gem is set in a small piece of squared brass, with its edge nearly parallel to one side. A person skilled in its use, now files away one side of the brass, until, by trial, he finds that it will act well, when guided, by keeping this edge pressed against a ruler. The diamond and its mounting are now attached to a stick similar to a pencil, by means of a swivel allowing a small angular motion. Thus the merest tyro, using it in this form, at once applies it at the proper angle, by pressing the side against a ruler; and even though the part he holds in his hand should deviate a little from its proper angle, yet it communicates no irregularity to the position of the diamond, which but rarely fails to do its office when thus employed.

As another example of the economy of time the use of gunpowdor in blasting rocks may be noticed. Several pounds of that substance may be purchased for a sum acquired by a few days labor: yet when this is employed for the purpose alluded to, effects are frequently produced which could not, even with the best tools be accomplished by other means in less than many months.

Instances of the production of valuable matter from the most worthless materials are constantly occurring. The skins used by the gold-beater are produced from the offal of animals. The hoofs of horses and cattle, and other horny refuse, are employed in the production of the Prussiate of Potash, that beautiful, yellow, crystallized salt, which is exhibited in the shops of some of our chemists. The worn-out sauce-pans and tin-ware which are beyond the tinker's art, are not utterly worthless, they are conveyed to the Manufacturing chemists who employ them in conjunction with a pyroligneous acid, in making a black dye for the consumption of calico printers.

The difference between a Tool and a Machine is not capable of very precise distinction, nor is it necessary in our popular explanation of them, to limit very strictly their popular sense. A tool is usually more simple than a machine: it is generally used with the hand, whilst a machine is frequently moved by animal or steam power. The simpler Machines are often merely one or more tools placed in a frame, and acted on by any moving power. In pointing out the advantages of tools, we shall commence with some of the simplest.

To arrange twenty thousand needles thrown promiscuously into a box, mixed and entangled with each other in every possible direction, in such a form that they shall be all parallel to each other, would, at first sight, appear a very tedious occupation; in fact, if each were to be separated individually, many hours must be consumed in the process. Yet this is an operation which must be performed many times in the Manufacture of needles; and it is accomplished in a few minutes by a very simple tool, which is, in fact, nothing more than a small flat tray of sheet iron, slightly concave at the bottom. The needles are placed in it and shaken in a peculiar manner, by throwing them up a very little, and giving at the same time a slight longitudinal motion. The shape of the needles assists their arrangement; for if the needles cross each other, (unless which is exceedingly improbable, they happen to be precisely the same,) they will, when they fall on the bottom of the tray, tend to place themselves side by side, and the hollow form of the tray assists this disposition. As they have no projection in any part to impede this tendency, or to entangle each other, they are by continually shaking, arranged lengthwise, in three or four minutes. The direction of the shake is now changed, the needles are but little, but the tray is shaken endways; the result of which is, that in a minute or two the needles which were previously arranged endways become heaped up in a wall, with their ends against the extremity of the tray. They are now removed by hundreds at a time by raising them with a broad iron spatula, on which they are retained by the fore-finger of the left hand

Another process in the same manufacture furnishes an example of one of the simplest contrivances which can come under the denomination of a tool. After the needles have been arranged in the manner just described, it is necessary to separate them into two parcels, in order that their points may be all in one direction. This is usually done by women and children. Their needles are placed sideways in a heap, on a table, in front of each operator just as arranged by the process above described. From five to ten are rolled towards the person by the fore-finger of the left hand; this separates them a very short space from each other, and each in its turn is pushed lengthwise to the right or left according as its eye is on the right or the left hand. This is the usual process, and in it every needle passes individually under the finger of the operator. A small alteration expedites the process considerably; the child puts on the fore-finger of its right hand a small cloth cap or finger stall, and rolling from the heap from six to twelve needles, it keeps them down by the fore finger of the left hand; whilst it presses the fore-finger of the right hand gently against the ends of the needles, those which have their points towards the right hand stick into the finger-stall: and the child, removing the finger of the left hand, allows the needles sticking into the cloth to be slightly raised, and then pushes them towards the left side. Those needles which had their eyes on the right hand do not stick into the finger cover, and are pushed to the heap on the right side previous to the repetition of this process By means of this simple contrivance each movement of the finger from one side to the other carries five or six needles to their proper heap whereas, in the former method, frequently only one was moved, and rarely more than two or three were transported at one movement to their place.

There occur operations in the arts in which the assistance of an extra hand would be a great convenience to the workmen, and in these cases tools or machines of the simplest kind come to our aid. Vices of different forms, in which the material to be wrought is firmly grasped by screws, are used in almost every workshop: but a more striking example may be found in the trade of a nail-maker.

Some kinds of nails, such as those used for defending the soles of coarse shoes, called hob-nails, require a particular form of the head, which is made by the stroke of a die The workman holds the red-hot rod of iron out of which he forms them in his left hand, with his right hand he hammers the end of it into a point, and cutting a proper length almost off, bends it nearly at right angles. He puts this into a hole in a small stake-iron immediately under a hammer connected with a treadle, and which has sunk in its surface a die corresponding to the intended form of the head; and having given one part of the form to the head by the small hammer in his hand, he moves the treadle with his foot which disengages the other hammer, and completes the figure of the head; the returning stroke of this hammer strikes the finished nail out of the hole in which it was retained. Without this substitution of his foot for another hand, the workman, would, probably, be obliged to heat the nails twice over.

(*To be continued.*)

Woodworth's Patent.

The Woodworth Patent has been the subject of more litigation than any other in the United States. The original schedule is not exactly a correct data for decision as regards the full claim of patent held by the executors of Woodworth. The first patent was granted in 1828, but afterwards it was re-issued owing to the first specification being defective. Some say that the re-issue was obtained by fraud, and that the original was not an original invention. That Hale and Bentham and Muir's patents for the same thing were older. Malcom Muir's invention for planing, tonguing and grooving, was older undoubtedly. The Woodworth patent was extended by the Patent Office in 1842, and it was farther extended by special act of Congress on the 26th of Feb. 1846. The act of Congress was not granted to Mr. Woodworth, nor for his benefit, because he had then gone to that "bourne from whence no traveller returns." It was a special law for the benefit of a monopoly, whose selfish schemes will be more fully developed at some other time.

"The schedule referred to in these letters patent, and making part of the same, containing a description in the words of the said William Woodworth himself, of his improvement in the method of planing, tonguing, grooving and cutting into mouldings, or either, plank, boards, or any other material, and for reducing the same to an equal width and thickness; and also for facing and dressing bricks and cutting mouldings on, or facing metallic, mineral and other substances.

The plank, boards or other material, being reduced to a width by circular saws, or friction wheels, as the case may be, is then placed on a carriage, resting on a platform with a rotary cutting wheel in the centre, either horizontal or vertical. The heads or circular plates fixed to an axis, may have one of the heads moveable, to accomodate any length of knife required. The knife fitted to the heads with screws or bolts; or the knives or cutters for moulding fitted by screws or bolts to logs, connecting the heads of the cylinder, and forming with the knives or cutters a cylinder. The knives may be placed in a line with the axis of the cylinder, or diagonally. The plank or other material resting on the carriage, may be set so as to reduce it to any thickness required; and the carriage, moving by a rack and pinion, or rollers, or any lateral motion to the edge of the knives or cutters on the periphery of the cylinder or wheel, reduces it to any given thickness. After passing the planing and reducing wheel, it then approaches, it required, two revolving cutter wheels, one for cutting the groove, and the other for cutting the rabbits that form the tongue; one wheel is placed directly over the other, and the lateral motion moving the plank or other material between the grooving and rabbiting wheels, so that one edge has a groove cut the whole length, and the other edge a rabbit cut on each side, leaving a tongue to match the groove. The grooving wheel is a circular plate, fixed on an axis with a number of cutters attached to it, to project beyond the periphery of the plate, so that when put in motion, will perform deep cut or groove parallel with the face of the plank or other material. The rabbiting wheel, also of similar form, having a number of cutters on each side of the plate, projecting like those on the grooving wheel, cuts the rabbit on each side of the edge of the plank, and leaves the tongue a match for the groove. By placing the planing wheel, axis, and cutter knives vertical, the same wheel will plane two planks or other material in the same time of one, by moving the plank or other material opposite ways, and parallel with each other against the periphery of the planing or moulding wheel. The groove and tongue may be cut in the plank or other material at the same time, by adding a grooving and rabbiting wheel.

Said William Woodworth does not claim the invention of the circular saws, or cutter wheels, knowing they have long been in use, but he claims as his invention, the improvement and application of cutter or planing wheels to planing boards, plank, timber, or other material; also his improved method of cutters for grooving and tonguing, and cutting mouldings on wood, stone, iron, metal, or other material, and also for facing and dressing brick: as all the wheels may be used separately and singly for moulding, or any other purposes before indicated. He also claims as his improved method the application of circular saws for reducing floor plank, and other materials to a width. Dated Troy, December 4th, 1828.

WILLIAM WOODWORTH.

Witnesses: HENRY EVERTS: L. S. GLEASON.

☞ I certify the above is a true copy of the Schedule attached to my patent.

WILLIAM WOODWORTH.

London.

London in length is eight miles, in breadth three, and in circumference, twenty-six. It contains 8,000 streets, lanes, and alleys, and courts, and sixty-five squares It has 246 churches and chapels, 307 meeting houses for dissenters, forty-three chapels for foreigners, and six synagogues for Jews—making 602 places of public worship. The number of inhabitants is at present estimated at about 2,000,000. In this vast city there are 4,000 seminaries for education, 10 institutions for promoting the arts and sciences, 122 asylums for the indigent, 17 for the sick and lame, 13 dispensaries, 704 charitable institutions, 58 courts of justice, 4,040 professional men connected with the law. There are 13,300 vessels trading on the river Thames in the year, and 40,000 wagons going and returning to the metropolis in the same period. The exports and imports, to and from the Thames is estimated at £66,711,222 annually, and the property floating in the vast city every year is £170,000,000 sterling.

A Gem.

The sunlight that follows a shipwreck is not less beautiful though it shines upon the remnants of the broken bark—that which is saved is so much more precious than that which has been lost. The domestic circle is always too precious to make excusable, any neglect to prevent or to heal disturbance. There are enough to minister, by hints and reports, to domestic unkindness; and, unfortunately, the best, under such circumstances are much prone to mistake, and thus misrepresent motives and trifles, with no direct object, are magnified into mountains of unintentional offence. It is the same in social life. Let us guard against it. Delicate relations are like the polish of costly cutlery; dampness corrodes, and the rust, though removed, leaves a spot

Advice to Parents.

My father liked to have, as often as he could, some sensible friend or neighbor to converse with him, and always took care to start some ingenious or useful topic for discourse, which might tend to improve the minds of his children. By this means he turned our attention to what was just and prudent in the conduct of life, and little or no notice was ever taken of what related to the victuals on the table, so that I was brought up in such a perfect inattention to those matters, as to be quite indifferent to what kind of food was set before me. In after life this has been a great convenience to me, for my companions are often very unhappy for want of a suitable gratification of their very much more delicate tastes and appetites. —*Franklin.*

Somebody suggests that birch rods make the best baby jumpers.

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TO CORRESPONDENTS.

"J. K. of Troy, N. Y."—We will answer by mail. It is evident that the French Sewing Machine is a little different from the American, and it is no better. It could not prevent your patent we think, nor the other machines, if your case be rightly managed.

R. P. of N. Y."—We received yours from Schenectady.

"J. S. D. of N H."—We referred only to music boxes that play a certain number of tunes, and have never heard of one able to play over a certain number, nor do we believe there ever has been. The plan to set it to play any tune from the gamut, is certainly something new. Get up your model and if it operates successfully your fortune is certainly made, and nothing can hinder a patent.

"L. B of N. Y."—The exploding of the two gases in the cylinder, could be of no benefit practically, as the expense would far surpass that of steam. Carbonic acid gas has been tried and effectually, but the expense did not warrant a prosecution of the project, although a very good speed was obtained with a boat propelled by gas on the Thames in 1823. We must state that an explosive material is of no use as a mechanical propellant. Weight and expansion are our handmaids,—these we can control. Whenever steam becomes explosive then we cannot master it.

"F. S. of Portland, Me"—Your volume of the Scientific American was sent by express last Monday.

"J. C. of Pa."—Your plan is a good improvement but you must compare the claim of the original patent, (which is not in the document sent,) and see whether there would be a confliction or not. It was rather too much to expect an examination of such a document, nevertheless we did so from your candid statement.

"G. G. of Mass."—It is not possible to comply at present with your offer. You had better endeavor to get the application sent and we will forward the model, and await the result. "There's a good time coming."

"P G. of Geneva, N. Y."—You will hear from us soon.

"G R. Jr., of New York."—All right We have since learned that the Herman had a longer passage than was at first reported.

"E. W. of Maine."—Your drawings are now made, and the papers will very soon be sent.

"P. G, of Mass."—You must not expect so many favors, they don't always make the pot boil.

"A. A. of Mass."—We are glad you corrected the mistake, and we should have been happy to have got the news earlier. We shall notice it in full in another number.

"D. W of La."—Yours has just come to hand. We shall answer soon.

"J. M. V. of N. Y."—Some of the British Engines, are rated at a certain amount of horse power, but they use a divisor of 66,000 for calculating the power This has deceived many.

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Mr. Matthias O'Kelly, 130 Anthony street, this city, has recently fitted up an establishment for the execution of all kinds of work in Electrotyping and Gilding, and we are confident that all jobs entrusted to his care will receive prompt attention. Mr. O'Kelly is an experienced workman at the peculiar art of Gilding and Electro Plating, and from the specimens of work which have been shown to us, we pronounce him the best artist in that business with whom we are acquainted. In connection with his other business Mr. O'Kelly will manufacture gold, silver, steel and tortoise shell spectacles to order, and attend to all jobs in turning ivory, brass or horn, with neatness and dispatch.

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The machine is simple, compact and durable, and has received the approval of every practical Cooper that has witnessed its operations. We warrant it to perform fully equal to our representation and shall be pleased to exhibit it to all who may favor us with a call. For further description and terms, apply to WM & E. T. FITCH, 2d., New Haven, Conn., or GEO. GILBERT, Westville, N. H. Co., Conn.

j3 3m.

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Monson, Mass., June 1, 1848. j3 tf

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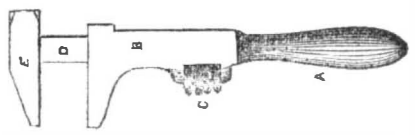

THE above is an engraving of an Improved Wrench, invented by George C. Taft, and manufactured by **Newcomb, Dixie & Co.** Worcester, Massachusetts.

A, is the handle; B, the stock; C, the screw; D, the slide, and E, the head.

The advantages of this Wrench are apparent. In the inside of the stock there is a rack which is worked by the screw C, and this rack is covered up free from dirt, and cannot be injured by a fall or other heavy substance on its working parts, (this quality no other Wrench possesses yet patented.) This screw can be worked with the thumb and all used with one hand. The ease with which this can be done must make this Wrench invaluable to every mechanic, as the fixed jaw is in the handle and the larger the nut to be screwed up or down the greater the lever power.

The above Wrench will be ready for the trade on the 20th of June next. Orders addressed to the subscribers will meet immediate attention.

NEWCOMB, DIXIE & CO
Worcester, Mass., May 1838. m27 tf

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PATENTED.

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m20 tf

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GEO. C. TAFT,
Worcester, Mass., April 11, 1848. a22 3m

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On a new and improved Plan.

Also, makes to order Engine and other Lathes of improved construction. ☞All order by mail, or otherwise, will meet with prompt attention by addressing A. W. WHITNEY.

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Solar Lamps—Gilt, Bronzed and Silvered, in great variety.
Suspending Solar Lamps, gilt and bronzed.
Bracket do do do
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Camphene Suspending Lamps, gilt and bronzed.
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November 29, 1847. d18 6m

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Inches.	Cents.	Inches.	Cents.	Inches.	Cnts
2 :	14	5 :	38	9 :	71
2 1-2	17	5 1-2	40	9 1-2	73
2 3-4	19	6 :	45	10	80
3 :	20	6 1-2	49	10 1-2	85
3 1-2	26	7 :	57	11 :	90
3 3-4	28	7 1-2	58	11 1-2	95
4 :	29	8 :	63	12 :	100
4 1-2	35	8 1-2	67		

All Bands of extra thickness will be made by special agreement. Light Bands for Cotton Mills furnished at short notice.

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FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

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THOMAS PROSSER, Patentee,
d26 28 Platt street, New York

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Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

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HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information cencerning them had.

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a22 2m* E. RICHMOND, Patentee

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For the Scientific American.

Curiosities of Mechanism.

Homer informs us that Vulcan fabricated tripods for the banquetting hall of the gods which advanced of their own accord to the table and again returned to their places moving on living wheels instinct with spirit. Appollonius saw similar pieces of mechanism among the Indian Sages. Dedalus of Greece, next made statues that could move. Archytas of Tarentum, who lived about 400 years before Christ, constructed a wooden pigeon that could fly. Archimides, it is said, constructed similar automata, but the particular account of them is lost. The first great piece of ingenious mechanism that we have any particular account of, was made in the East. It was a curious clock presented to Charlemage by the celebrated Mohamedan Sultan Haroun Alraschid. In the dial plate there were twelve small doors corresponding to the twelve hours, and at each hour a door opened and little balls of metal came out and struck the hours upon a bell. Each door when it opened remained so until twelve o'clock, when twelve little knights mounted on horseback came out at the same instant and paraded round the dial, returning each to his own door and shutting it behind him. In the thirteenth century Albert, Bishop of Ratisbon, Germany, (a place singularly famous for novel inventions,) spent thirty years in constructing a human figure, which advanced to the door when any one knocked, opened it and saluted the visiter. About the same time Friar Bacon was engaged in constructing his brazen head, so famous in story, but in the wonders of which we are very thick in the skull to admit the light of ancient faith to illuminate our modern unbelief. In the 14th century Regiomontanus alias John Muller, constructed a wooden eagle, which is reported to have flown to meet the Emperor Maximlian on the 7th of June, 1470, at Nuremburg, and after saluting him it flew back to the gate of the city and sat down upon it. This is a historical fact. This same ingenious man is reported to have made an iron Fly which could fly from the hand of its master round the room and again return. When Charles the 5th left his throne and retired to a secluded life, he was amused with automatons of various kinds. Figures of armed men and horses, some beating drums and others playing flutes and others going through military evolutions, were generally introduced to the retired monarch after dinner. Wooden birds also used to fly around the room and deposit themselves in their nests again. These were all made by the illustrious self exiled monarch, and he is also reported to have made some corn mills so small that they could be concealed in a glove, yet so powerful that they could grind in one day as much as would feed eight men. If all these things are true, the best of our millwrights will have to say mum on the subject of modern improvements. A celebrated mechanic in France, named Camus, constructed for Louis 14th, a small coach drawn by two horses, having a footman and page behind and a driver in front and a lady inside. The coachman smacked his whip, the horses paced off when placed upon the table and when the carriage stopped before the king, the page stepped down and opened the door, when the lady alighted and with a curtsey presented a petition to Louis, and waiting for a short time she curtsied again, re-entered the carriage, the page closed the door, assumed his seat and the carriage drove on, and the footman, who had also alighted, was made to run after the carriage and jump on his seat.

Degennes, the celebrated French officer who defended St. Christopher against the British, constructed a peacock that could walk about, pick grain and digest it, and it was probably this peacock that suggested to Vaucanson the idea of his wonderful duck, already noticed in No. 33 of this vol. Scientific American. Vaucanson also invented a flute player and a pipe and tambor player, which were exhibited in many places in Europe and produced a great sensation. The flute player was 5 feet 6 inches high and placed upon a piece of rock 4½ feet high by 3½ feet wide.—The pedestal contained six pair of bellows and the machinery by which they were worked. The air passed into the body of the figure by three tubes and its passage out through the mouth was regulated by valves worked by levers so perfectly adjusted that the performances of the figure were generally allowed to surpass all living performers on the flute.—The pipe and tabor player was always considered by Vaucanson to be a more ingenious piece of mechanism than his duck, and these automatons acquired the reputation of being the best flageolet and tabor players in Europe. The mechanism of these was so intricate and difficult that he was frequently on the point of abandoning the invention in despair, but his patience and inventive genius at last overcame every difficulty and made him the greatest automaton mechanic that ever existed. In constructing the flageolet player Vaucanson found that this instrument must be the most difficult of all others to play in consequence of the different and changing efforts which the muscles of the chest have to make during the performance. The pressure for the highest notes required fifty six pounds while the lowest required only the pressure of a single ounce.

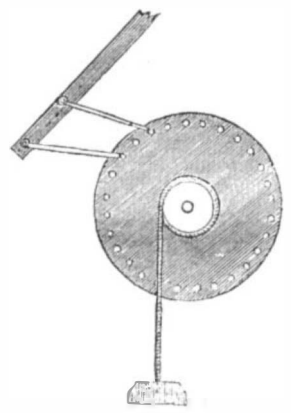
The famous chess player of Kempelen for a while overshadowed the fame of Vaucanson, but it is now well known that trickery more than mechanical invention were the characteristics of the automaton chess player. The real chess player was a living one.

Krastien and Wills endeavored to make speaking automatons, but two German brothers of the name of Droz eclipsed them, in making a singing bird that poured forth a strain of the most rapturous music. The father of the brothers Droz, was also an ingenious mechanic and made a sheep that bleated perfectly, and a dog that watched a basket and barked when any one offered to take it away. About thirty years ago one Maillardett, an ingenious Swiss, constructed a humming bird which was exhibited in all the principal cities of Europe. He also made a steel spider resembling a living one which would run, and also a musical lady that could perform eighteen tunes on the piano forte in the most natural way and with all the appearance of feeling the effect of her own music. This singular genius also made the celebrated automaton magician that astonished the world by its fortune telling. It was dressed in the costume of a Seer and held a wand in one hand and a book in the other.—Twenty questions ready prepared were inscribed on oval medallions and any person selecting one it was placed in a drawer ready to receive it. The drawer was then shut and the magician arose from his seat, bowed his head, described a circle with his wand and remained in deep thought; he then struck the wall with his wand which immediately flew open, and displayed written upon the inside an appropriate answer. We have already spoken of Professor Faber's automaton, and also that of Dr. Lube. We may at some other time describe that of Dr. Roth. At present we close this article with the remark, that the passion for automaton machinery soon wears off, more especially when it is known that the fine machinery in our cotton factories almost rival those of the finest automaton. This is the utilitarian age of the world and what excited the wonder of past ages, though ingenious, if it is not useful, will be but little esteemed now The same combination of mechanical powers that made the spider crawl, or the finger of the automaton move are now adapted to nobler and more useful purposes. The present is the grand and majestic age of mechanical invention. The tiny wheels and pinions of the spider now move the spinning jenny and the loom in more large proportions. The magician of Maillardet has given way to the more mighty magician of Watt, and the miniature horse and carriage of Louis the 14th, is now to be observed in snorting locomotives, as hugely ingenious and powerful, as the other was minute and skilfully small.

Instead of producing inventions to amuse, the present age invents only to benefit man and increase the product of the earth. No piece of mechanism, however trivial, if ingenious, should be despised. It may be the germ of some mighty machine, as the wheel was that of the spinning jenny.

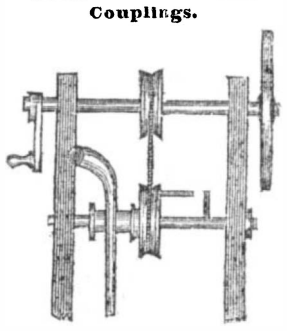
MECHANICAL MOVEMENTS.

Oblique Lever and Wheel.



A vibrating lever having catches which gather tooth after tooth of a ratchet wheel, can be applied either to raise a weight or let it drop down gradually. The escapement of of clocks lets the weights drop down gradually and thus by the simple manner of regulating the number of vibrations that will take place as a weight is falling a certain distance, do we measure our hours and days.—The above cut shows a method of raising the weight by the vibratory motion of the oblique lever, by means of the catches (which are not exactly right represented in the engraving) catch the pins on the wheel. An enthusiastic mechanic once combined this with the escapement and thought he had made a perpetual motion, but the loss by friction was not taken into consideration, and his clock soon ceased to operate.

Couplings.



This cut represents a method of coupling by which the revolution of the upper shaft may be transferred to the shaft below by bringing the pin on the loose wheel in contact with the one on the shaft. This is done by means of the small lever or handle. This method of coupling may be very useful in some cases where the clutch would be inconvenient. It shows at least the principle of coupling and uncoupling whereby a shaft to drive any machine may be under the perfect command of the operative by throwing it out and in gear as he chooses, but a secondary pulley of a smaller diameter than that of the main driver on the same shaft, is a more economical method of changing or stopping the motion, simply by throwing the band off the larger drum.

For the Scientific American.

Olive Green.

Olive green is a beautiful and agreeable color. It is refreshing to the eye and chaste to the fancy. It looks always best upon fine cloth, in fact, it is singular in this property, and should never be dyed upon any kind of wool or woolen cloth but that of the finest quality. It is very easily dyed. Any person following the subjoined directions cannot go wrong :—

Put into a clean copper or tin kettle in which the cloth or woolen yarn is to be dyed, as much water as will cover the whole cloth when put into the boiler and leave it plenty of room for stirring. (There is far less danger in having a large boiler than a too small one.) Bring the water to boil and put into it for ten pounds of cloth, five pounds of fustic and one of logwood, in a bag Boil these for fifteen minutes and then add six ounces of the sulphate of copper and in a few minutes enter the cloth, with the liquor still boiling as strong as possible. The cloth must not have its folds pressed and squeezed together, but it must be free and loose in the boiler and there is no need of any shifting of the cloth, except with a proper long smooth stick to ease up the cloth gently and frequently from the bottom of the boiler. One hour's boiling will suffice when the cloth may be taken out and washed. It will then be found to be a beautiful olive green color, but rather light. If it is wanted to be very dark it will take seven pounds of fustic, three pounds of logwood and half a pound of camwood boiled in the bag, and the cloth boiled one hour in this, then taken out and aired, and six ounces of the sulphate of copper and four ounces of the sulphate of iron (copperas) added, and the goods then entered again and boiled one hour longer, when they are to be taken out, washed and finished. The last process is the best for a fast and dark color, and for home made cloth to be made into winter coats, it is certainly a much better looking color than the watery and snuff colored yellow greens that we often see. Walnut rinds will answer instead of the fustic and so will that of the butternut—but fustic is the best and is not dear. This color will spot with vinegar and other acids, but a little saleratus dissolved in water and applied to the spots will restore them unless the color is effectually destroyed.

The above receipts may be depended upon as thoroughly practical, but never let it be forgot that the liquor must be kept at the boil—a strong boil when the cloth is entered and a more gentle boil afterwards. Yarn takes one third more stuffs to dye a color than cloth, and coarse cloth one third more than fine.—This must also be kept in mind.

Coloring Wood.

French cabinet makers can now make wood of any color they please, by letting the roots of the trees absorb the colored fluids the year before it is cut down. A solution of iron passed up one root, and of prussiate of potash up the other will give the wood a permanent blue color.

Cleaning Trees.

Trees and vines which are kept the cleanest, bear the best; like the human body, the pores of their skin become clogged with dirt, and retain gases which should escape. Trees the bark of which has been scraped and scrubbed, become more thriving, and more vigorous.

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